BEFORE THE

Federal Communications Commission

WASHINGTON, D. C. 20554

In the Matter of	)	
	)	
Revision of the Commission's	)	CC Docket No. 94-102
Rules to Ensure Compatibility	)	
with Enhanced 911 Emergency	)	
Calling Systems	)	

To: The Commission

JOINT REPLY COMMENTS OF

ASSOCIATION OF PUBLIC-SAFETY COMMUNICATIONS OFFICIALS-INTERNATIONAL, INC.

NATIONAL EMERGENCY NUMBER ASSOCIATION

NATIONAL ASSOCIATION OF STATE NINE ONE ONE ADMINISTRATORS

March 17, 1995

TABLE OF CONTENTS

SUMMARY

The claim the government cannot and should not expedite the deployment of new technology is wrong. Congress, the Commission and the courts have established the mission and the authority to look beyond commercially developed communications methods in service to the public interest.

PBX Issues

Most of the commenters agreed with the general principle that PBX equipment must be compatible with Enhanced 9-1-1 systems, and that FCC intervention is necessary. For the most part, the disagreements were limited to issues regarding specific methods of implementation. For example, some questioned the feasibility of requiring systems to accommodate 9-1-1, as opposed to 9-9-1-1. As explained below, those parties have overstated the technical restraints and underestimated the importance of uniform three-digit dialing of 9-1-1.

On several issues, there appears to be confusion as to whether the Commission should mandate operational requirements for specific installations, or just technical requirements regarding equipment. We continue to recommend that the Commission adopt rules to ensure that all PBX equipment will be capable of providing Enhanced 9-1-1 compatibility. However, state and local governments, not the FCC, will need to determine which PBX installations must comply with various elements of Enhanced 9-1-1. Similarly, we continue to urge that database maintenance issues are best left to state and local governments, so long the Commission requires that the industry adopt a database standard (such as the NENA standard).

Finally, we oppose an extension of the implementation period for PBX compatibility, as some suggested. The necessary technology exists today, and the Commission's proposed implementation period provides more than adequate time for compliance.

Wireless Issues

Many commenters claim that wireless 9-1-1 compatibility requirements are premature because neither enhanced nor basic 9-1-1 is available to the entire country. They are peering through the wrong end of the telescope. More than three-quarters of subscriber lines are served by Enhanced 9-1-1. The problem we face here is not the absence of 9-1-1 but its widespread availability. Unless the rapidly increasing proportions of wireless telephone calls are accommodated to Enhanced 9-1-1, the huge wireline investment in emergency communications is threatened with obsolescence, and wireless users will be deprived of this valuable emergency service.

Where 9-1-1 in any form does not yet exist, wireless compatibility is a moot issue. But once wireline 9-1-1 becomes available, wireless providers should be required to adapt to it promptly. The failure of the cellular industry to achieve compatibility voluntarily over the past dozen years, despite record growth, argues strongly for FCC intervention.

The record amassed thus far is highly supportive of most of the FCC's proposed requirements and the timetable for introducing them. We agree, however, with the several thoughtful commenters who have questioned the vagueness and the possible misdirection in the Phase II deadline for locational information. Other

commenters have made useful suggestions on the re-ring/callback issue.

In the final analysis, the technology and the standards-setting bodies who can make it work are poised and ready for the incentives FCC intervention can supply. While there is no need for formal or informal advisory committee deliberations to delay the adoption of rules, such bodies may well be of service to the Commission and the public interest in the implementation phases. We believe that the public safety community should and will be represented in such post-adoption collaboration, in proportion to the high stake they hold in the prompt achievement of wireless 9-1-1 compatibility.

BEFORE THE

Federal Communications Commission

WASHINGTON, D. C. 20554

In the Matter of	)	
	)	
Revision of the Commission's	)	CC Docket No. 94-102
Rules to Ensure Compatibility	)	
with Enhanced 911 Emergency	)	
Calling Systems	)	

To: The Commission

REPLY COMMENTS OF APCO, NENA and NASNA

The Association of Public-Safety Communications Officials-International, Inc. ("APCO"), the National Emergency Number Association ("NENA"), and the National Association of State Nine One One Administrators ("NASNA"), hereby submit the following joint reply comments in response to the approximately 120 comments in the first round of the Commission's Notice of Proposed Rulemaking, FCC 94-237 (released October 19, 1994), in the above-captioned proceeding.

INTRODUCTION

While the views expressed in the initial comments are as disparate as the variety of economic, governmental and societal interests represented, all are animated by a concern that communications in the aid of public safety continue to be rapid, reliable, and effective for the protection of lives and property. Virtually all of the comments supported the concept and the importance of enhanced (E)9-1-1 service. However, they differed widely

about whether their particular service, product or installation should be affected by the proposed rules.

There is still much ground to cover in some areas. Many of those who commented requested the FCC to wait until the technology was available and cost-effective. However, we ask: "When will this occur and who will determine what technology is available and cost effective?" The FCC must act now to make sure the installed base of both PBX and wireless equipment does not become significantly larger or new technologies are not widely deployed before action is taken.[1/] Otherwise, public safety will be back at the FCC's door requesting action and the naysayers will still be complaining about the size of the installed base or the lack of technology.

The technology is rapidly becoming available (field trials for some of the various technologies are underway) and is becoming cost effective. The industry complains about implementing technologies that are not yet cost effective. However, they have spent millions for marketing

---

[1/]Some of the comments have tried to downplay the seriousness of the problem. Depending on the type of dispatch center, cellular calls can easily be 20 to 30 percent of the total call volume. This percentage can be even greater for highway patrol and state police dispatch centers. TRACER in their comments on page 6 footnote 2 indicate as a result of the State of Washington PBX Workgroup that 1.8 percent of 9-1-1 calls came from PBX locations. The study also indicated 0.34 percent of the 9-1-1 calls received are cases where the person could not identify location. This study relied on the manual collection of data which required 9-1-1 telecommunicators to mark down when they received a call from a caller that could not identify location. Therefore, the numbers are likely significantly underreported. The growing number of PBXs used in shared tenant situations will increase these numbers.

reasons implementing digital cellular and advanced features before the technology is mature.

At the outset, we wish to address two themes that appear so frequently in opposition to the Commission's proposals that they demand early attention. The first is that government cannot or should not mandate uninvented or undeveloped technologies, and should leave the pace of achieving 9-1-1 compatibility to the commercial marketplace and/or industry standards-setting bodies. The second is that public safety agencies and other government bodies should make extension of wireline 9-1-1 (both basic and enhanced) a priority before seeking wireless compatibility; and, in any event, such compatibility should not be required where 9-1-1 services do not exist in the first place.

The general theme of government impetus to technology is discussed below. The question of building out the wire 9-1-1 network before requiring wireless compatibility is taken up at the beginning of Section II, infra.

To fulfill its statutory mandates, the Commission must look beyond commercially deployed technologies.

In its introduction to the Notice (¶7), the Commission acknowledged the primacy of the statutory obligation to promote "safety of life and property through the use of wire and radio communication." In fact, the Notice continued, "it is difficult to identify a nationwide wire or radiocommunication service more immediately associated with promoting safety of life and property than 9-1-1." Later in the document (¶34, n.38), the agency recognized that

adherence to its legal mission may require it to issue prescriptive orders, not merely react to technical, economic or social developments:

> Based on our experience with cellular and other mobile radio services, it appears doubtful that enhanced 9-1-1 interface capability will be implemented voluntarily.

The same point had been made previously in discussion of E9-1-1 compatibility rules for PBXs and other multi-line telephone systems (MLTS): "The record in this proceeding ... indicates that market forces to date have not been effective in implementing a solution to this problem." (¶12)

In meeting the life and property protection obligations of Section 1 of the Communications Act, 47 U.S.C.§151, the Commission is directed to encourage technological innovation. With specific regard to communications common carriers, the agency is instructed to stay ahead of the established marketplace, "to the end that the benefits of new inventions and developments may be made available to the people of the United States." 47 U.S.C.§218. Much the same language was later adopted by Congress for general application, instructing the Commission "to encourage the provision of new technologies and services to the public." 47 U.S.C.§157.

The courts have affirmed the Commission's broad authority to protect and advance public safety. In a decision involving possible ouster from terrestrial microwave radio spectrum of certain public safety licensees

by emerging direct broadcast satellite (DBS) services, one court observed:

> While this mandate [to protect life and property] does not grant public safety broadcasters an absolute right to a particular spot in the spectrum, we do believe it requires the FCC to give their needs priority over those of commercial broadcasters such as DBS.[2/]

A U.S. District Court found the technology-promoting imperatives of the Communications Act -- Sections 1 and 218 -- sufficient to allow some variance by the pre-divestiture AT&T from the literal language of a 1956 consent decree limiting the telephone company to provision of regulated common carrier services:

> The phrase "so far as possible" expresses the intent that available and feasible new technology be applied in achieving the mandated goal.[3/]

Construing a statute much like the Communications Act in its promotion of public safety, the National Traffic and Motor Vehicle Safety Act of 1966, 15 U.S.C.§1381 *et seq.*, a U.S. Court of Appeals opined:

> [The National Highway Traffic Safety Administration] is empowered to issue safety standards which require improvements in existing technology or which require the development of new technology, and it is not limited to issuing standards based solely on devices already fully developed.

Bearing in mind that the transportation agency's safety standards were legislated to be "practicable," the court said it was not endorsing

---

[2/] National Ass'n of Broadcasters v. F.C.C., 740 F.2d 1190 (D.C. Cir. 1984).

[3/] United States v. Western Elec. Co., Inc., 531 F.Supp.894 (USDC-N.J. 1981).

> standards so demanding as to require a manufacturer to perform the impossible, or ... so imperative as to put a manufacturer out of business.

Nevertheless, said the court

> it is clear from the Act and its legislative history that the agency may issue standards requiring future levels of motor vehicle performance which manufacturers could not meet unless they diverted more of their resources to producing additional safety technology than they might otherwise do.[4/]

These judicial excerpts clearly affirm the Commission's authority to prescribe the timely application of technology that is available and feasible, albeit commercially undeveloped, in the overriding public interest of protecting lives and property -- even if the prescription imposes costs that were not in the regulated entities' original business plans.

I. COMPATIBILITY OF PBX EQUIPMENT WITH E9-1-1 SYSTEMS

After reviewing the comments received, we remain strong in our conviction that PBX systems must provide 9-1-1 compatibility. While there is no central clearinghouse for reporting 9-1-1 incidents involving PBX's, problems are occurring daily. The original Adcomm petition included numerous newspaper accounts about real incidents involving real people, concerning problems with PBX incompatibilities with enhanced 9-1-1 systems. These are not simply "anecdotes" that have little bearing in reality, as the North American Telecommunications Association (NATA)

[4/] Chrysler Corporation v. Department of Transp., 472 F.2d 659 (6th Cir. 1972) (emphasis added).

suggests.[5/] Real people are affected daily by this problem. To deny there is a problem is simply to ignore reality. NATA indicates that any rules that come out of this proceeding should make a statement that "...nothing in its rules or accompanying opinions is intended as a finding that any existing equipment is unsafe, substandard, or below the "state-of-the-art."[6/] We believe these two positions by NATA represent opposing views (If there is no problem, why the worry about liability?) Interestingly, other user organizations take a much different view, such as that stated by the Tele-Communications Association (TCA): "At a broad level, TCA believes that the Commission's proposals are both reasonable and desirable."[7/]

We concur with statements made in many of the comments that all PBX installations may not need to comply with all the requirements for interconnection with E9-1-1 systems. Each state or locality should be permitted to adopt regulations as to which PBX installations must have full E9-1-1 interconnect. However, all PBX-type equipment will need to have consistent access to 9-1-1 regardless of the size or configuration of the system. This may be

---

[5/] See North American Telecommunications Association Comments, at 6.

[6/] Id. at 18.

[7/] Tele-Communications Association Comments, at 2.

accomplished in a variety of ways that are transparent to the 9-1-1 caller.[8/]

We also concur that some PBX systems only provide telephone service to an area that is relatively small and easily accessible by emergency service personnel. These installations may not require a special access to the 9-1-1 system as the service address of the PBX may provide adequate location information. Other installation situations may have off-premises extensions which would require a special interface to the E9-1-1 network to pass station identification. The size of the PBX (e.g., the number of stations or ports) is not a good indicator of whether or not a special E9-1-1 interface will be required, but all equipment should have such capability.

The Commission should make it clear that any new technology introduced should consider how it will affect E9-1-1 systems and how the interface to those systems will be accomplished. We disagree with the position stated by GTE that,[9/]

> The Commission should allow the nascent and relatively small wireless PBX market sufficient

---

[8/]NATA suggested on page 4 of their comments that the proposed rules were an unprecedented intrusion into the routine installation, maintenance, and use of business telephone systems. These comments sound similar to those made during the development of the original Part 68 requirements. In addition, businesses and property owners have long had to deal with government requirements related to the health and safety of their work force. We also believe many business owners would implement the required interfaces today if the manufacturers and LEC's would provide them with a cost-effective method.

[9/]GTE's comments, at 33.

> time to develop the basic technology needed to provide this service at competitive prices before making location information a non-optional feature.

This is exactly the kind of problem that starts out small and suddenly there are many installations. At that point, the manufacturers could argue there is too much equipment in the field and in production to add E9-1-1 compatibility without a gradual phase-in period.

This same response can be made to the comments by Harris Corporation regarding the "cottage ACD" application, where workers at home are part of a large ACD group and have a telephone connected to the ACD system by an off-premises extension.[10/] These "cottage ACD agents" could be spread out over a large area. Someone at the "cottage" could inadvertently use that line to dial "9-1-1," in which case the call could be routed to a PSAP that is entirely wrong for the caller. The public good is not served if technologies are developed without regard for E9-1-1. Allowing these technologies to develop unimpeded would be like allowing an automobile to be sold that did not meet any of the Federal safety or pollution standards because it got good gas mileage and was very cheap.

All of these requirements should apply to all users of PBX equipment including the Federal Government. The Commission should not allow the Federal Government, including the Department of Defense, a blanket exemption from these requirements as requested by the DOD in their

---

[10/]Harris Corporation comments, at 1.

comments. Today these systems create problems for local E9-1-1 systems because they do not provide caller location information. We agree the DOD will and does have some legitimate security concerns. We also agree that in some cases the Federal agency is providing primary first response for police, fire, and emergency medical incidents. However, these cases are the exception, not the rule.

We want to reiterate our position that the Commission should focus on the technical issues related to the interface to the network and should require that all equipment be capable of providing the required interface. If not carefully crafted, the technical interface requirements written into the Commission's rules could stifle technical innovation restricting both equipment suppliers and E9-1-1 systems.

We also continue to believe that PBX manufacturers must provide PBX interconnection with the E9-1-1 network whether or not selective routing is employed. We oppose any attempt to define E9-1-1 as only those systems that include selective routing. The key element is the location information not the selective routing. In the selective routing case, the interface is essentially the standard "CAMA" type trunk with slight signaling modifications for E9-1-1 depending on the specific implementation. In the case where there is no selective routing, the trunk still uses multi-frequency signaling but with a different data and trunk format. This interface is defined in Bellcore TR-TSY-

350, E9-1-1 Public Safety Answering Point: Interface Between a 1/1AESS Switch and Customer Premises Equipment.

We agree with the majority of the comments that some issues need not be addressed and are difficult to address in the Commission's rules. These issues are better handled and monitored at the state and local level. Through state and local regulations, the determination of the size of the area served by a PBX and who will enforce the requirements to be connected to the E9-1-1 network can be controlled. State and local officials have existing mechanisms to monitor and enforce their requirements.

A. 9-1-1 Availability

There was some disagreement between those that commented regarding the requirement for true three digit dialing for 9-1-1. These comments generally centered around two arguments: (1) users are familiar with dialing "9" to reach an outside line and therefore would be confused by three digit access; and (2) there are technical difficulties with implementing this approach. These two positions do not represent insurmountable problems. During a true emergency at a location served by a PBX, the user will think instinctively to dial 9-1-1 and not 9-9-1-1. This will be particularly true for those company locations where the employees or users do not normally use the telephone for outgoing calls (e.g., manufacturing floor, warehouses, etc.). In addition, sometimes electronic key systems are connected to Centrex-type systems or two electronic

telephone systems are connected together resulting in multiple access digits being dialed.

The technical difficulties with three digit dialing can be overcome and are neither difficult nor expensive. AT&T, one of the largest manufacturers of PBX equipment, supported the use of three digit dialing in their comments.[11/] Recent changes in the North American Numbering Plan regarding interchangeable area codes and the use of overlay area codes require PBX systems to do more digit analysis. Adding a requirement to analyze 9-1-1 is not difficult, especially because we agree to grandfathering existing PBX systems. There may be some internal PBX dialing plan limitations imposed as a result of three digit 9-1-1 dialing, but these should not be significant. However, as also mentioned by AT&T, if a PBX user should dial 9-9-1-1 or other access code, the call should not be blocked. Therefore, the Commission must require that PBX equipment provide access to 9-1-1 by dialing the digits "9" "1" "1" without any access code. This should apply to all telephones, even those blocked from normal outside access.

Many of those commenting expressed concern that adding these requirements to PBX equipment would put their equipment at a competitive disadvantage with central office based services such as Centrex. We sympathize with this argument, and believe central office based services should be included in the requirements because they offer PBX-like

---

[11/] AT&T comments, at 10.

services and have the same or similar problems associated with 9-1-1.

Many comments expressed opposition to any labeling requirements that might be imposed. We remain steadfast in our request that the Commission adopt requirements for labeling equipment -- sold after the effective date of the rules but prior to the implementation date -- that does not provide 9-1-1 access. The labeling would primarily be the responsibility of the telephone system installer and not the manufacturer.

B. Attendant Notification

Most of the comments agreed that Attendant Notification was desirable and that the Commission should adopt technical rules requiring that PBX equipment have the capability of automatically notifying an attendant when an 9-1-1 call is placed. We also agree with the comments that the rules not require an attendant. We are not requesting that an attendant be present at all times, only that if one is available the person be notified. The attendant notification should include the extension number that has dialed 9-1-1. Some states, however, have regulations prohibiting attendant notification because of privacy concerns. Therefore, while all equipment should be capable of this feature, it should be capable of being "switched on or off" depending on the local regulations either requiring or prohibiting this feature. In addition because of obvious privacy concerns, the attendant notification feature should

not include the capability to listen in on the conversation as suggested by AT&T[12/]

Some comments proposed the use of a live attendant in lieu of E9-1-1 compatibility. We are generally opposed to this alternative except in a few specific cases. If the PBX owner has a location that is staffed by professional emergency personnel whose main job is maintaining security or operations, anytime someone could be in any of the locations served by the PBX, then it may be acceptable to have emergency calls routed there in lieu of having an E9-1-1 interface. However, routing the calls to a "front desk" or "security station" that is not staffed, anytime an emergency call could come in or to personnel that are not trained to deal with the emergency call, is not acceptable. For example, many companies have 24-hour security patrols but the security officer is often away from the security station during rounds or patrols.

C. ALI Database Maintenance

Many of those that commented expressed a great deal of concern related to database issues. Some comments suggested that the database issues be handled by the Commission but in a different section of the rules[13/]. Others however, felt that database issues, are better handled at the state and

---

[12/] Id. at 12.

[13/] TIA comments, at 7. TIA supports the Commission establishing uniform requirements and requiring that the information be protected by the FCC's Customer Proprietary Network Information rules.

local levels[14]. We continue to believe the Commission should not rule on database accuracy, update interval, or other similar issues. These are best left to state and local authorities.

The majority of the comments supported the need for a national standard (e.g., likely the NENA standard as updated) for the database format. A few suggested not requiring a national standard, but it appeared this was because they had already invested in their own standard and did not want to change.[15] While we agree there will be some cost, we do not agree the change would be "technically burdensome." Therefore, the Commission should require the use of a national database standard.

Many of those commenting expressed concern with the amount of work associated with keeping the location information up to date. Examples were given where users were moved from one location to another on a regular basis resulting in a significant amount of work keeping the database up to date. We believe this work effort is being overestimated in some of the comments for the following reasons:

1. The ALI information does not need to have an associated person's name. While this might be preferable, the important information is the company name and the location of the phone.

---

[14]State of California Public Utilities Commission comments, at 3.

[15]BellSouth comments, at 10.

2. While it is true that people and telephone numbers may move often in some companies, the physical wiring moves much less often. In many cases, the switch port-to-wire location information does not change, rather the switch port-to-directory number association changes. Manufacturers could do a better job of providing automated database tools to download the port-to-directory number information to keep the directory number-to-location information accurate.

3. Many companies do not maintain good telephone directories for their own employees because inexpensive database tools do not exist that are integrated with the database located in the switch. A requirement to maintain better information will result in an expanded market for these tools and corresponding increased choice.

Many companies would benefit in improved communications if they kept better telephone records. Increased employee productivity would help to reduce the real cost of maintaining the database. We believe database maintenance is a fundamental part of effectively managing any telephone system.

D. Station Number Identification (SNI)

As discussed in our original comments and many of the other comments, Station Number Identification (SNI) is a complex issue. The comments generally supported and we

concur that a consistent method of dealing with SNI is required. In general, most parties opposed the use of "pseudo ANI." Most of the comments suggested PBX's should have the capability to provide 10-digit numbers that conform with the NANP, to allow PSAP's to call back into the PBX, for follow-up information, or if the caller is disconnected prior to the PSAP telecommunicator obtaining enough information. This may require some changes to PSAP equipment. Therefore, the Commission should require the use of 10-digit numbers conforming to the NANP for SNI.

Many of those commenting expressed concern about the cost of having a large number of DID numbers and the need for each station to be uniquely identified. We concur with the concerns expressed in these comments. We have not proposed nor have we suggested that every PBX station be uniquely identified. TIA TSB-103 has several acceptable alternatives described. The goal of the PBX station ALI should be to provide public safety responders with enough information to locate the caller within 2-3 minutes of arriving at the location of the caller.

E. Information Protocol Standard

As discussed in our original comments, there are three components to the Information Protocol:

1. The information transferred from the PBX to the E9-1-1 network.
2. The information regarding the location of the PBX station that resides in the ALI database.

3. Future information requirements where the location information may be sent along as a part of the call.

Item number one above is defined in the Bellcore LSSGR documents defining multi-frequency signaling and CAMA trunks; and in Bellcore TR-TSY-350, E9-1-1 Public Safety Answering Point: Interface Between a 1/1AESS Switch and Customer Premises Equipment, defining the interface between the selective router and the PSAP equipment. Many of those who commented felt this standard was not appropriate for a variety of reasons. Some of them were:

1. This approach requires special equipment at the PBX and is not a standard PBX signaling scheme. (DTMF signaling is available in virtually all PBX systems but MF signaling is not.)
2. This approach is technically obsolete.
3. This approach does not allow for the required flexibility for future advances in the telephone network.

We agree that the 9-1-1 network needs to be updated but at this time, the CAMA-MF type interface is the only interface in place that is standard. We agree with the comments by Northern Telecom that the Commission should encourage and possibly mandate the inclusion of E9-1-1 features in new network designs which would allow the use of ISDN Primary or Basic rate signaling.[16/]

[16/]Northern Telecom comments, at 29.

Public safety cannot wait until the entire telephone network is upgraded for PBX's to provide an E9-1-1 compatible interface. The Commission should adopt these standards as a minimum for the technical interface, to either the network or a PSAP as applicable. The Commission should require that any standards developed in industry standards setting bodies include input and participation from public safety.

Item #2 was briefly discussed in Section C and most of the comments expressed support for a national standard database format which we also support. Therefore, the Commission should require any LEC or other supplier of E9-1-1 database services comply with the NENA database format.

F. Local Exchange Company Services

Many comments expressed concern that the LEC's could use E9-1-1 interface requirements to stifle competition, especially by charging excessive amounts for the E9-1-1 trunks or by providing location information as a standard part of their central office based services. These concerns can be handled two ways. The first is that PBX users can appeal to their local state public utility commissions for fair and equitable rates. The second is that the Commission can require that telephone service providers implement their future networks and network enhancements with E9-1-1 capability in place. For example, if the existing E9-1-1 network was capable of receiving the PBX station ALI via the